Claims

1. An exhaust gas treatment method comprising:

an oxidizing step for converting metallic mercury contained in combustion exhaust gas into mercury chloride; and

a removing mercury step from said combustion exhaust gas by dissolving said mercury chloride in water, wherein

a plurality of oxidation catalysts for performing said oxidizing step are provided, and during the time when said oxidizing step is performed, at least one of said oxidation catalysts performs catalyst performance restoration treatment without performing said oxidation treatment.

2. The exhaust gas treatment method according to claim 1, wherein said catalyst performance restoration treatment is to decompose or remove a compound adhering to said oxidation catalyst.

3. The exhaust gas treatment method according to claim 2, wherein a gas having a temperature not lower than a decomposition temperature of said compound is supplied to said oxidation catalyst.

4. An exhaust gas treatment system for removing a hazardous trace substance contained in exhaust gas generated in a combustion apparatus, comprising:

first removal means for removing NO_x contained in

said exhaust gas by converting it into N_2;

catalytic oxidation means for performing oxidation treatment in which metallic mercury contained in said exhaust gas having passed through said first removing means is oxidized into mercury chloride in the presence of an oxidation catalyst; and

second removal means for removing mercury chloride and SO_x, which are contained in said exhaust gas having passed through said catalytic oxidation means, by gas-liquid contact,

said catalytic oxidation means being provided with a plurality of said oxidation catalysts each of which performs oxidation treatment independently, and also being provided with restoring gas supply means for selectively supplying performance restoring gas to said oxidation catalysts.

5. The exhaust gas treatment system according to claim 4, wherein said performance restoring gas is supplied to said oxidation catalyst having finished predetermined oxidation treatment.

6. The exhaust gas treatment system according to claim 5, wherein said oxidation catalyst which has been supplied with said performance restoring gas for predetermined time restarts oxidation treatment immediately after the supply of said performance restoring gas has been

stopped or after a predetermined time has elapsed.

7. The exhaust gas treatment system according to claim 6, wherein the time for supplying said performance restoring gas to said oxidation catalyst is set so as to be shorter than the time for performing oxidation treatment, and the start timing of oxidation treatment performed by each of said oxidation catalysts is different.

8. The exhaust gas treatment system according to claim 6 or 7, wherein for a predetermined oxidation catalyst, a standby state in which neither said oxidation treatment nor the supply of said performance restoring gas is accomplished is provided.

9. The exhaust gas treatment system according to any one of claims 4 to 7, wherein said exhaust gas treatment system further comprises a combustion apparatus for generating said performance restoring gas.

10. The exhaust gas treatment system according to any one of claims 4 to 7, wherein said catalytic oxidation means has a wet type dust collector into which said performance restoring gas having passed through said oxidation catalyst is introduced, said wet type dust collector being provided between said oxidation catalyst and said second removal means.

11. The exhaust gas treatment system according to claim 10, wherein said exhaust gas treatment system further

comprises gypsum yielding means for yielding gypsum by mixing an effluent from said wet type dust collector with an absorbing solution of said second removal means.

12. A catalytic oxidation apparatus which has an oxidation catalyst for oxidizing metallic mercury by supplying combustion exhaust gas, and restores oxidation performance by supplying heating gas to said oxidation catalyst whose oxidation performance has been deteriorated by the presence of a compound adhered by oxidation treatment, comprising:

a plurality of oxidation chambers through which said combustion exhaust gas passes independently;

said oxidation catalyst disposed in each of said oxidation chambers;

first flow path opening/closing means disposed at the upstream side of said oxidation catalyst in each of said oxidation chambers and second flow path opening/closing means disposed at the downstream side thereof; and

a heating gas supply path for selectively supplying said heating gas to said oxidation catalyst.

13. The catalytic oxidation apparatus according to claim 12, wherein said heating gas is supplied through said heating gas supply path to said oxidation catalyst in a state in which the supply of said combustion exhaust gas is stopped by closing said first flow path opening/closing

means and said second flow path opening/closing means.

14. The catalytic oxidation apparatus according to claim 13, wherein said heating gas flows into a portion between said first flow path opening/closing means and said oxidation catalyst; said flowed-in heating gas passes through said oxidation catalyst; and said heating gas having passed through said oxidation catalyst is discharged through a portion between said oxidation catalyst and said second flow path opening/closing means.